

EXTERNAL HARD DISKS

INTRODUCTION

Hard disks that once seemed impossibly vast can fill up with files surprisingly quickly. It's important to have plenty of storage space, whether you want to shoot high-definition video, take photos in RAW format or convert all your music CDs into MP3 files.

An easy way to add storage to your computer is to plug in an external hard disk. These have two main advantages over internal disks. First, attaching an external disk is quicker and easier than replacing your computer's internal hard disk. Second, you can carry an external disk away from your computer, which means you can transfer large quantities of data to another location or keep a backup of your data away from your computer in case it's damaged or stolen.

This month we've tested six portable disks designed for use on the move with a laptop, and six larger, mains-powered disks designed for use on your desk. No matter how much data you need to store, we'll help you find the right disk.

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PC systems and
storage expert

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THE OUTSIDERS

Adding extra hard disk space to your PC is as simple as plugging in an external drive. Whether you need portable storage or a desk-bound backup disk, you'll find it here



Choosing an... External Hard Disk

Buying an external hard disk isn't simply a matter of choosing the biggest capacity at the lowest price. External hard disks vary in design, features and performance. Before you buy, it's important to decide whether you need a portable disk, how much storage space you need, which interfaces you want and whether you need backup software.

GET CARRIED AWAY

There are two main types of external hard disk: portable and desktop drives. Desktop hard disks have the highest capacities and the lowest cost per gigabyte, but they need to be plugged into the mains.

Portable disks are ideal if you need to carry your data with you or move it from one computer to another. They are based on laptop hard disks so they're lighter and smaller than their desktop counterparts, but they can't store as much and are more expensive per gigabyte. Most portable disks use 2½in disks but some, such as LaCie's Little Disk, use a 1.8in disk. These are small but they're not as fast or as good value as their slightly larger counterparts.

Portable disks don't need a mains power supply, but some need to connect to two USB ports in order to draw enough power to run.

SPACE RAIDERS

When deciding on your drive's capacity, the general rule is to buy as large a hard disk as you can afford. Two of the desktop disks in this month's Labs are 1TB or larger, while the rest have capacities of 500GB. The portable disks range in capacity from 60GB to 320GB. Most models are also available in other capacities, which we list in the tables on page 128. The table also shows the cost per gigabyte of each disk, making it easy to judge how much storage you're getting for your money.

Some external disks, such as Iomega's UltraMax Pro, consist of two internal hard disks configured as a RAID array. When configured as a RAID 0 array, the two disks appear to Windows as a single drive with the combined capacity of both disks. Data is written alternately to one disk then the other, which increases performance. If one disk were to fail, though, you would lose all your data. When set up in a RAID 1 configuration, data is mirrored across the two disks. This halves the available capacity, but if a single disk should fail, the other disk will retain a copy of your data.

CONNECTION CONFUSION

Many external hard disks, especially desktop models, offer a choice of interfaces. USB Hi-Speed ports are by



This month

PORTABLE EXTERNAL HARD DISKS

MEMOREX
Ultra TravelDrive 160GB
Page 124



MAXTOR
OneTouch 4 Mini 160GB
Page 124



LACIE Little Disk, Design by Sam Hecht 60GB
Page 124



IOMEGA
eGo USB 250GB Blue
Page 124



BUFFALO MiniStation TurboUSB Portable Hard Drive 320GB
Page 124



FREECOM
ToughDrive 320GB
Page 124



DESKTOP EXTERNAL HARD DISKS

MAXTOR
OneTouch 4 Plus 500GB
Page 125



LACIE Hard Disk, Design by Neil Poulton
Page 125



BUFFALO DriveStation Combo TurboUSB 500GB
Page 125



LACIE
d2 Quadra 500GB
Page 125



FREECOM
Hard Drive Pro 1000GB
Page 125



IOMEGA
UltraMax Pro 1.5TB
Page 125



far the most common and all PCs and laptops made in the past couple of years should have at least two. USB Hi-Speed is fast enough for most tasks but you may want to use a faster interface such as FireWire or eSATA if you deal with large amounts of data, such as HD or digital video. Many new computers come with FireWire 400 ports. Although FireWire 400 has a lower theoretical throughput than USB, it's faster when transferring files due to the way it works.

If your laptop or PC doesn't have FireWire 400, you'll need a FireWire 400 CardBus or PCI card. Most laptops have four-pin instead of six-pin FireWire 400 ports, so you may need a four-pin to six-pin FireWire cable. You can connect multiple FireWire disks to a computer by daisy-chaining them, but for this to work all the FireWire devices in your chain apart from the final one must have two six-pin ports.

FireWire 800 is even faster than FireWire 400 and, as our tests show, can approach or exceed the speeds of eSATA disks. Sadly, few hard disks and even fewer PCs have FireWire 800 ports. A FireWire 800 PCI card costs about £30, a CardBus adaptor costs £40 and an ExpressCard adaptor costs £60. FireWire 800 devices can be plugged into FireWire 400 ports with a £20 adaptor, but will run only at FireWire 400 speeds.

Finally, eSATA is the external version of the SATA/300 interface used by internal hard disks. An eSATA interface can be significantly faster

than USB or FireWire and can sometimes match the speeds of internal SATA disks. A growing number of PCs now come with eSATA ports but, unlike FireWire, you're limited to one disk per eSATA port. The cheapest way to add ports is with a £5 PCI eSATA backplate, which plugs in to one of the SATA ports on your motherboard.

SOFTLY DOES IT

External hard disks are ideal for making backups of your important files. If you don't already use a backup program, it's worth considering the applications bundled with many disks.

Backup software should support scheduled backups so that you don't have to remember to

copy your files over manually. It should keep older versions of your files in case you delete or change something by mistake on your internal hard disk. It should also support incremental backups so only those files that have changed since your last backup are copied, saving time.

Most of the backup programs bundled with these disks include at least one or two of these essential features, but the LaCie Backup Software program that comes with some LaCie disks is so basic that it's not much better than using Windows Explorer. The Maxtor Manager program included with Maxtor's disks is especially handy, as it can create a complete image of your internal hard disk.

How we test External hard disks

Several factors determine how quickly a hard disk can copy files. Cache memory, interface, spindle speed and data density all play a part. This makes it difficult to guess the speed of a disk from its specification.

To test how quickly each hard disk can read and write files, we use an automated benchmarking script. Files are copied from a PC's RAM to the hard disk and back again. We use the PC's RAM as the source of the file transfer as it's much faster than any hard disk

and ensures that we get the fastest possible performance from each disk.

In the first test we copy a 100MB file to and from the disk 100 times. This shows how it copes with large files such as videos and images. Next, we copy some small files totalling 100MB to and from each disk. This shows how quickly small files, such as system files, are copied during a system backup.

If a disk has more than one interface, we repeat all our tests for each one.

PORTABLE HARD DISKS

MEMOREX Ultra TravelDrive 160GB

★★★★

£54 inc VAT
From www.digital-fusion.co.uk



Memorex's 160GB Ultra TravelDrive is easy to hold thanks to its rubberised grips. The grey plastic side panels detach and can be replaced with the green or white panels included.

The TravelDrive's speeds in our large file tests were average for the portable hard disks. We were more disappointed with its small-file read speed, which was one of the slowest.

The included backup software supports scheduled and incremental backups, but it won't make versioned backups, which save multiple versions of the same file, making it easy to revert to a previous version. You can trigger a backup by pressing the small button next to the USB port, although you can't set the button to launch your own program.

The TravelDrive is the cheapest portable hard disk in the group, but Maxtor's similarly priced OneTouch 4 Mini is faster and is a better choice if you're on a tight budget.

PORTABLE EXTERNAL HARD DISK 160GB capacity,
USB Hi-Speed interface
PART CODE 331193

DETAILS www.memorexlive.com

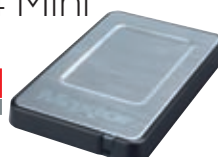
- ✓ Respectable large-file copy speeds; inexpensive
- ✗ Disappointing small-file read and write speeds

MAXTOR OneTouch 4 Mini 160GB

★★★★

£57 inc VAT
From www.pcwb.com

COMPUTER
SHOPPER
BUDGET BUY



Maxtor's OneTouch 4 Mini has a rubberised base to stop it sliding across your desk. As with Memorex's Ultra TravelDrive, a button launches its backup software, but, unlike the TravelDrive, the button can launch another program of your choice. The included software is among the best in the group. As well as backing up files incrementally and according to a schedule, it can clone your internal hard disk.

The OneTouch was the fastest portable disk at writing large files and was second only to the Buffalo MiniStation's TurboUSB mode when reading them. Its performance was less impressive when writing small files, where it was the second slowest portable disk at just 7.34MB/s. It fared better when reading small files, but it couldn't exceed 12MB/s as the Freecom and Iomega portable disks did.

The OneTouch isn't the fastest, but it's good value and has a five-year warranty and a powerful backup application. It's a Budget Buy.

PORTABLE EXTERNAL HARD DISK 160GB capacity,
USB Hi-Speed interface
PART CODE STM9016030TD3E1-RK

DETAILS www.maxtorsolutions.com

- ✓ Fast large-file copy speeds; powerful backup software
- ✗ Disappointing small-file write speeds

LACIE Little Disk, Design by Sam Hecht 60GB

★★

£65 inc VAT
From www.yoyotech.co.uk



LaCie's 60GB Little Disk is noticeably smaller than the other portable USB disks in the group. This is because it has a 4,200rpm 1.8in hard disk rather than the 5,400rpm 2½in disks used by the other portables here. The Little Disk is around the size of a cigarette packet. It has a short retractable USB cable built in, and an extension lead is provided.

Not surprisingly the Little Disk was the slowest portable disk in all our tests because of its lower spindle speed. Although it was only one or two MB/s slower than the front-runners when reading files, it was noticeably slower at writing them. When writing large files, it was more than 5MB/s slower than the next slowest portable disk.

We can't recommend the Little Disk unless you absolutely need pocket-sized storage. It's slow, doesn't have much storage and costs a huge £1.36 per gigabyte.

PORTABLE EXTERNAL HARD DISK 60GB capacity,
USB Hi-Speed interface
PART CODE 301271

DETAILS www.lacie.com/uk

- ✓ Compact
- ✗ Slow overall copy speeds; high cost per gigabyte

IOMEGA eGo USB 250GB Blue

★★★★★

£91 inc VAT
From www.lambdatek.com/componentshop

COMPUTER
SHOPPER
BEST BUY



The 250GB eGo is a similar shape and size to a hip flask. Its rigid metal case feels strong and it comes in a choice of colours.

The eGo didn't disappoint in our tests. It was the third-fastest portable USB disk for copying large files, behind Maxtor's OneTouch 4 Mini and the Buffalo MiniStation TurboUSB. It was the fastest drive when writing small files, at 10.65MB/s, but Freecom's ToughDrive just edged ahead of it when reading small files.

EMC's Retrospect Express HD backup software is included. It can back up your files according to a schedule and will copy only those files that have changed since your last backup. Unfortunately, the wizard-style interface can be frustrating to use.

Overall, we were impressed with the eGo. It performed well in all our benchmarks, it feels tough and is good value at just 42p per gigabyte. It's a Best Buy.

PORTABLE EXTERNAL HARD DISK 250GB capacity,
USB Hi-Speed interface
PART CODE 34161

DETAILS www.iomega-europe.com

- ✓ Fast overall performance
- ✓ Low cost per gigabyte; feels tough

BUFFALO MiniStation TurboUSB 320GB

★★★★★

£116 inc VAT
From www.kikatek.com



In addition to USB Hi-Speed, Buffalo's 320GB MiniStation can operate in TurboUSB mode if the included driver is installed on your PC. Buffalo claims that TurboUSB is up to 64 per cent faster than USB Hi-Speed, but our tests showed more modest improvements, if any.

In our small-files tests, TurboUSB was actually a little slower than USB Hi-Speed. In our large-files tests, TurboUSB was three to four MB/s faster than USB Hi-Speed, making it quicker than most of the other portable disks. Without TurboUSB, the MiniStation's large-files performance was average for the group.

We were impressed with the bundled Memeo AutoBackup software, which can back up your files automatically in the background as you work.

The MiniStation is one of only two 320GB disks in the group but it costs the least per gigabyte at just 40p. It's great value, but Iomega's eGo feels tougher.

PORTABLE EXTERNAL HARD DISK 320GB capacity,
USB Hi-Speed interface
PART CODE HD-PS320U2

DETAILS www.buffalo-technology.com

- ✓ Low cost per gigabyte; good overall performance
- ✗ Inconsistent TurboUSB speeds

FREECOM ToughDrive 320GB

★★★★

£127 inc VAT
From www.lambdatek.com/componentshop



Although Freecom's ToughDrive has a rubber-coated case to protect it from knocks, its chassis doesn't feel as sturdy as the Iomega eGo's metallic case. A short USB cable is built into the case, and a longer extension cable is also included.

The drive comes with NTI's Shadow backup software. This can back up your files according to a schedule or continuously in the background while you work. It can even keep older versions of your files in case you delete or change something you later wish you hadn't.

The ToughDrive was one of the fastest portable disks in the group for copying small files. Unfortunately, it was the second-slowest portable disk in our large-files tests, beating only LaCie's 4,200rpm Little Disk.

This sluggishness might be forgiven if the ToughDrive were cheaper, but it costs 47p per gigabyte and has the highest price of all the portable disks in the group. Buffalo's MiniStation is better value.

PORTABLE EXTERNAL HARD DISK 320GB capacity, USB
Hi-Speed interface
PART CODE 30570

DETAILS www.freecom.com

- ✓ Fast small-file copy speeds
- ✗ Expensive; disappointing large-file copy speeds

MAXTOR OneTouch 4 Plus 500GB

★★★★

£81 inc VAT
From www.lambda-tek.com/componentshop



Maxtor's 500GB OneTouch 4 Plus hard disk looks classy when positioned vertically, but its odd shape means it can't be stacked easily with other storage peripherals.

The OneTouch has FireWire 400 and USB Hi-Speed ports. Unfortunately, it was by far the slowest desktop disk when writing small files, managing just 6.5MB/s when connected via FireWire and 6.19MB/s over its USB connection. It was the fastest desktop drive when writing large files, however, at 24.9MB/s.

We liked the included software. You can back up your files according to a schedule or by pressing the front-mounted button. The utility can even clone your internal hard disk to the external drive.

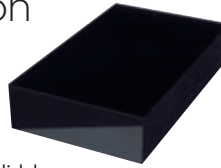
At 17p per gigabyte, Maxtor's One Touch 4 is inexpensive. We were also impressed with its bundled software, but its slow small-file copy speeds make it hard to recommend.

DESKTOP EXTERNAL HARD DISK 500GB capacity,
USB Hi-Speed, FireWire 400 interfaces
PART CODE STM305004OTD3E5-RK
DETAILS www.maxtorsolutions.com
✓ Inexpensive; powerful backup software
✗ Slow overall copy speeds

LACIE Hard Disk, Design by Neil Poulton

★★★★

£90 inc VAT
From www.play.com



LaCie's latest 500GB external desktop hard disk has a blue neon activity light and glossy black enclosure. Unlike the other desktop disks in the group, this hard disk has only a USB Hi-Speed interface and not FireWire or eSATA.

The LaCie Hard Disk was generally slower than the other desktop drives on test. It wrote small files at 7.22MB/s – far behind Buffalo's DriveStation Combo, which costs just £2 more. It was much faster than the Buffalo drive overall in our large-file tests, however.

The bundled Sync utility can synchronise your Outlook emails and web browser bookmarks to the disk. The backup software is very basic, though, and not much better than using Windows Explorer to back up your data.

LaCie's 500GB Hard Disk is fair value at 19p per gigabyte, but the Buffalo drive's superior small-file performance and FireWire port make it a better buy for just 1p more per gigabyte.

DESKTOP EXTERNAL HARD DISK 500GB capacity,
USB Hi-Speed interface
PART CODE 301302EK
DETAILS www.lacie.com/uk
✓ Fairly good value
✗ No FireWire; slow overall small-file write speeds

BUFFALO DriveStation Combo TurboUSB 500GB

★★★★★

£92 inc VAT
From www.kikatek.com

COMPUTER
SHOPPER
BEST BUY

Buffalo claims that the 500GB DriveStation Combo's TurboUSB mode is up to 30 per cent faster than USB. In TurboUSB mode, it wrote small files at 10.12MB/s, compared with 10.03MB/s in USB Hi-Speed mode. TurboUSB seemed to hold it back when reading small files, and its large-file read and write speeds were below average in the group.

However, the DriveStation was one of the fastest FireWire 400 disks in the group, and its file copy speeds were considerably faster than over USB. Unlike the other FireWire disks, the DriveStation has only one six-pin FireWire 400 port, so it will have to be the last device in the chain if you connect multiple FireWire peripherals to your PC.

Its TurboUSB mode was disappointing, but the DriveStation performs well when connected using FireWire and is good value at 20p per gigabyte. It's a Best Buy.

DESKTOP EXTERNAL HARD DISK 500GB capacity,
USB Hi-Speed, FireWire 400 interfaces
PART CODE HD-HS500IU2
DETAILS www.buffalo-technology.com
✓ Fast FireWire speeds; good value
✗ Disappointing TurboUSB speeds

LACIE d2 Quadra 500GB

★★★★

£145 inc VAT
From www.allmacshop.co.uk



LaCie's d2 Quadra has a front-mounted button that launches the included Retrospect Express backup program or an application of your choice. It's the only disk in the group with eSATA, USB Hi-Speed, FireWire 400 and 800 ports.

The d2 did consistently well in our tests, no matter which interface was used. It was the fastest USB Hi-Speed disk in our small-files tests and the second-fastest desktop disk in our large-files tests. It was also the second-fastest FireWire 400 disk overall.

Using FireWire 800, the d2 copied large files at 55.86MB/s and small files at 19.66MB/s, which is astonishingly quick. With eSATA we transferred large files at 74.79MB/s, which was beaten only by Iomega's drive in RAID 0, and small files at a quick 17.33MB/s.

The d2 Quadra is incredibly fast and feels well made, but it's pricy at 32p per gigabyte. Unless you need the ultimate in performance, Buffalo's DriveStation is a better buy.

DESKTOP EXTERNAL HARD DISK 500GB capacity, USB
Hi-Speed, FireWire 400, FireWire 800, eSATA interfaces
PART CODE 301825EK
DETAILS www.lacie.com/uk
✓ Wide choice of interfaces; very quick
✗ High cost per gigabyte

FRECOM Hard Drive Pro 1000GB

★★★★

£247 inc VAT
From www.lambda-tek.com/componentshop



Freecom's Hard Drive Pro is the only 1TB hard disk on test. It lacks eSATA, but it does provide FireWire 400 and 800 as well as USB Hi-Speed.

The Pro's performance over FireWire was excellent. Over FireWire 800, it was just behind LaCie's d2 when copying small and large files. Its performance over FireWire 400 was the best in the group in our large-file copy tests, at 32.68MB/s, but it was in third place for copying small files, with an average of 15.3MB/s. When connected via USB its large- and small-file performance was only average for the group.

The disk has two front-mounted buttons, one for launching the included NTI Shadow backup program and the other for password-protecting your disk. You can't use your own software with either button, though.

The Pro is a huge drive with good FireWire performance, but it's expensive at 29p per gigabyte. We'd rather buy two 500GB Buffalo DriveStation Combo drives for less.

DESKTOP EXTERNAL HARD DISK 1TB capacity, USB
Hi-Speed, FireWire 400, FireWire 800 interfaces
PART CODE 29418
DETAILS www.freecom.com
✓ Very quick over FireWire
✗ Average USB performance; high cost per gigabyte

IOMEGA UltraMax Pro 1.5TB

★★★★★

£263 inc VAT
From www.lambda-tek.com/componentshop



Iomega's 1.5TB UltraMax Pro consists of two removable, tray-mounted 750GB hard disks, which can be configured as RAID 0 or RAID 1. You do this by flipping a tiny set of dip switches on the back of the drive and pressing the pinhole reset button, which also erases the drives. It's fiddly, and we would prefer a simple software utility.

When configured as RAID 0 and connected using eSATA, the UltraMax was impressively fast at copying large files, although it was slower than three of the FireWire 400 disks in our small-files test. Its overall write speeds over USB were near the bottom of the group.

When configured as RAID 1 and connected using eSATA, its large-file transfer speeds were similar to those of a FireWire 800 disk, but its small-file copy speeds were only just better than those of the fastest USB disks.

The UltraMax is good value at just 20p per gigabyte. It's not that fast, but it's a great buy if you want the redundancy of a RAID 1 array.

DESKTOP EXTERNAL HARD DISK 1.5TB capacity, USB
Hi-Speed, eSATA interfaces
PART CODE 33828
DETAILS www.iomega-europe.com
✓ RAID support; low cost per gigabyte
✗ Fiddly RAID configuration; not especially quick



BENCHMARKS

eSATA desktop

FireWire 400 desktop

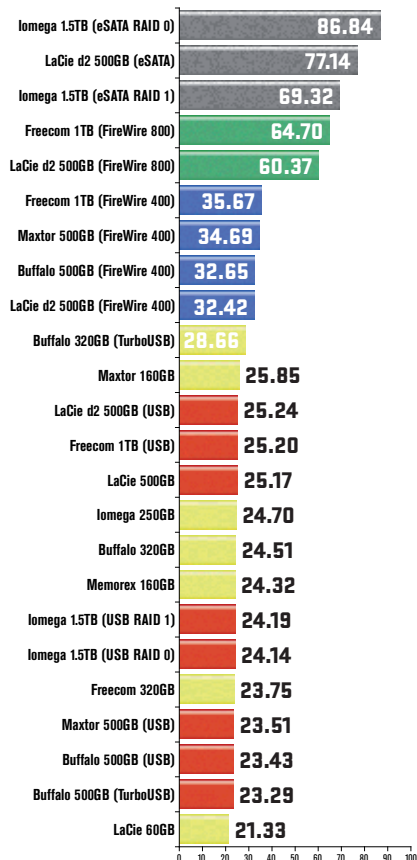
FireWire 800 desktop

USB desktop

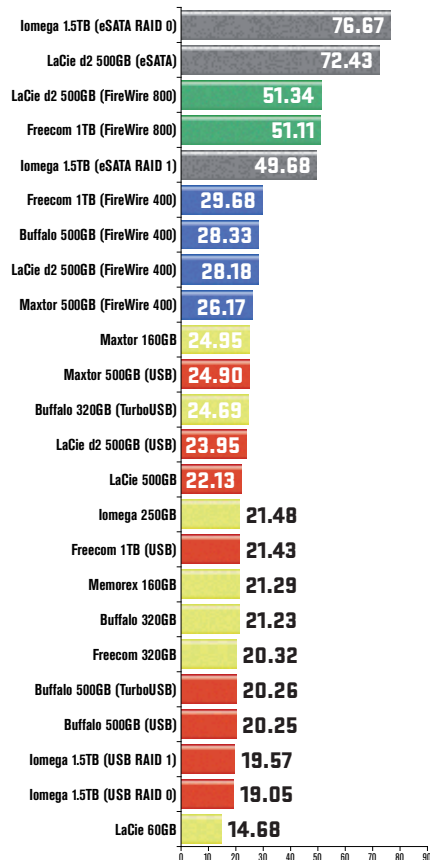
USB portable

Performance

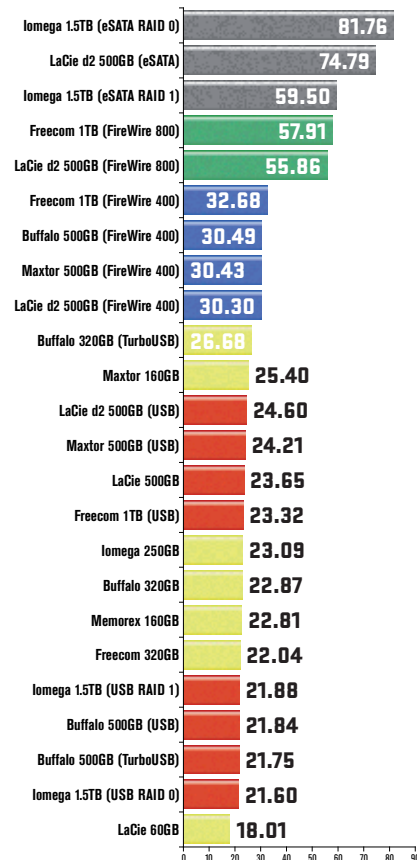
Reading Large Files (MB/s)



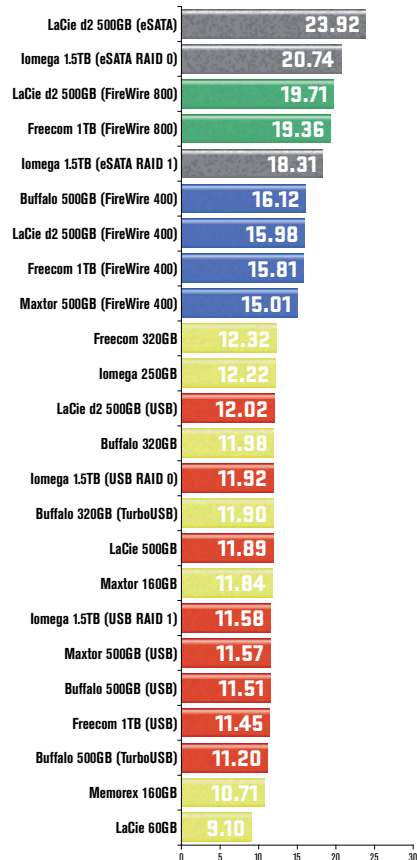
Writing Large Files (MB/s)



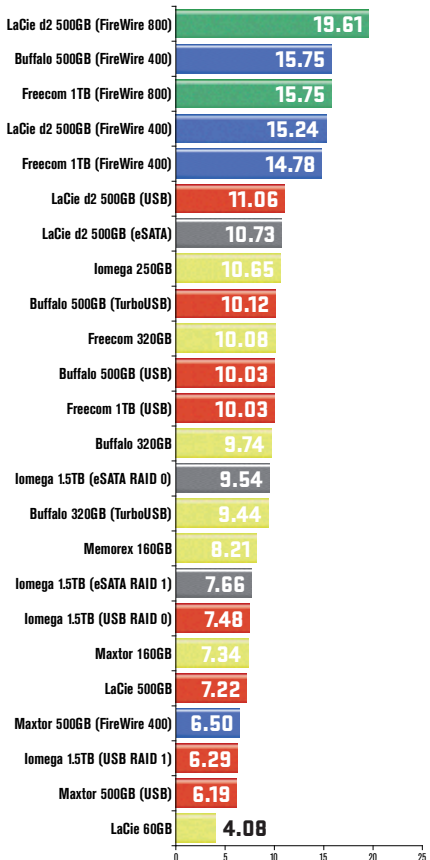
Large Files Overall (MB/s)



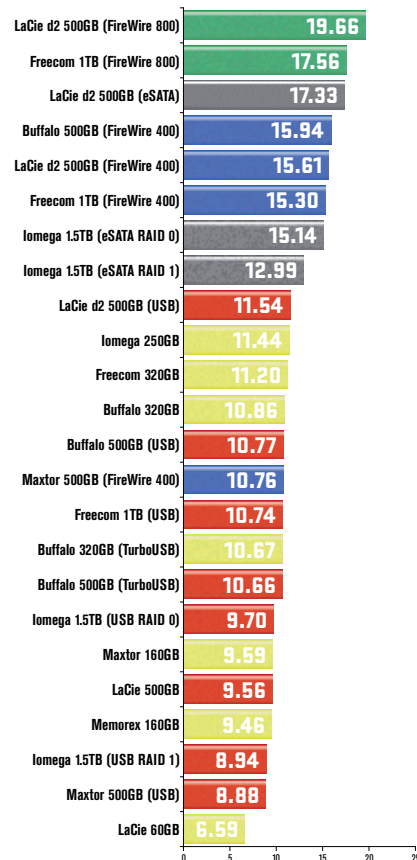
Reading Small Files (MB/s)



Writing Small Files (MB/s)



Small Files Overall (MB/s)



EXTERNAL HARD DISKS

		COMPUTER SHOPPER BUDGET BUY		COMPUTER SHOPPER BEST BUY		
MANUFACTURER	MEMOREX	MAXTOR	LACIE	IOMEGA	BUFFALO	FREECOM
Model	Ultra TravelDrive 160GB	OneTouch 4 Mini 160GB	Little Disk, Design by Sam Hecht 60GB	eGo USB 250GB Blue	MiniStation TurboUSB Portable Hard Drive 320GB	ToughDrive 320GB
Rating	★★★	★★★★	★★	★★★★★	★★★★★	★★★
STORAGE						
Hard disk	Seagate Momentus 5400.3 Ultra ATA/100 160-GB Hard Drive ST9160821A	Seagate Momentus 5400.3 Ultra ATA/100 160-GB Hard Drive ST9160821A	Hitachi Travelstar HTC42606 0G8CE00 00P7	Samsung Spinpoint M55 HM250JJ	Samsung Spinpoint M6 HM320JJ	Samsung Spinpoint M6 HM320JJ
Capacity	160GB	160GB	60GB	250GB	320GB	320GB
Formatted capacity (NTFS)	149GB	149GB	56GB	232GB	298GB	298GB
Price per gigabyte	£0.36	£0.38	£1.16	£0.39	£0.39	£0.43
Disk size	2½in	2½in	1.8in	2½in	2½in	2½in
Interface	USB Hi-Speed	USB Hi-Speed	USB Hi-Speed	USB Hi-Speed	USB Hi-Speed	USB Hi-Speed
Power connector	USB from host	USB from host	USB from host	USB from host	USB from host	USB from host
Spindle speed	5,400rpm	5,400rpm	4,200rpm	5,400rpm	5,400rpm	5,400rpm
Cache	8MB	8MB	2MB	8MB	8MB	8MB
Quoted seek time	Not disclosed	Not disclosed	Not disclosed	5.6ms	12.0ms	12.0ms
HD Tach access time	17.2ms	15.9ms	20.3ms	17.4ms	21.6ms	19.9ms
Weight	168g	170g	136g	238g	170g	210g
Dimensions (HxWxD)	20x85x135mm	15x83x125mm	20x65x82mm	21x89x136mm	21x83x127mm	20x84x140mm
BUYING INFORMATION						
Capacities available	80GB, 120GB, 160GB	80GB, 120GB, 160GB	30GB, 60GB	160GB, 250GB	80GB, 120GB, 160GB, 250GB, 320GB	120GB, 160GB, 250GB, 320GB
Bundled backup software	ArcSoft TotalMedia Backup 1.1.3.13	Maxtor Manager 4.1.1.23	LaCie Backup Software 1.5.2378.16573, LaCie Sync 7.0.108	EMC Retrospect Express HD 2.0	Memo AutoBackup 2.00.1451	NTI Shadow 3.7.5.20
Price including VAT	£54	£57	£65	£91	£116	£127
Warranty	Two years	Five years	Two years	Two years	Two years	Two years
Supplier	www.digital-fusion.co.uk	www.pcwb.com	www.yoyotech.co.uk	www.lambda-tek.com/componentshop	www.kikatek.com	www.lambda-tek.com/componentshop
Details	www.memorexlive.com	www.maxtorsolutions.com	www.lacie.com/uk	www.iomega-europe.com	www.buffalo-technology.com	www.freecom.com
Part code	331193	STM9016030TD3E1-RK	301271	34161	HD-PS320U2	30570

		COMPUTER SHOPPER BEST BUY				
MANUFACTURER	MAXTOR	LACIE	BUFFALO	LACIE	FREECOM	IOMEGA
Model	OneTouch 4 Plus 500GB	Hard Disk, Design by Neil Poulton	DriveStation Combo TurboUSB 500GB	D2 Quadra 500GB	Hard Drive Pro 1000GB	UltraMax Pro 1.5TB
Rating	★★★	★★★★	★★★★★	★★★★	★★★	★★★★
STORAGE						
Hard disk	Seagate Barracuda 7200.10 Ultra ATA/100 500-GB Hard Drive ST3500630A	Seagate Barracuda 7200.10 SATA 3.0Gb/s 500-GB Hard Drive ST3500830AS	Samsung Spinpoint T166-501LJ	Samsung Spinpoint T166-501LJ	Hitachi Deskstar 7K1000 HDS721010KLA330	2x Seagate Barracuda 7200.10 SATA 3.0Gb/s 750-GB Hard Drive ST3750840AS
Capacity	500GB	500GB	500GB	500GB	1TB	1.5TB
Formatted capacity (NTFS)	465GB	465GB	465GB	465GB	930GB	1,396GB
Price per gigabyte	£0.17	£0.19	£0.20	£0.32	£0.27	£0.19
Disk size	3½in	3½in	3½in	3½in	3½in	3½in
Interface	USB Hi-Speed, FireWire 400	USB Hi-Speed	USB Hi-Speed, FireWire 400	USB Hi-Speed, FireWire 400, FireWire 800, eSATA	USB Hi-Speed, FireWire 400, FireWire 800	USB Hi-Speed, eSATA
Power connector	External	External	External	External	External	External
Spindle speed	7,200rpm	7,200rpm	7,200rpm	7,200rpm	7,200rpm	7,200rpm
Cache	16MB	8MB	16MB	16MB	32MB	8MB x2
Quoted seek time	8.5ms	8.5ms	8.9ms	Not disclosed	9.2ms	10.0ms
HD Tach access time	12.8ms	13.3ms	16.3ms	14.0ms	12.9ms	13.8ms
Weight	1.1kg	920g	1.3kg	1.7kg	1.5kg	3.0kg
Dimensions (HxWxD)	172x65x150mm	46x118x194mm	170x55x208mm	174x45x162mm	50x181x151mm	157x162x205mm
Power consumption idle	10W	10W	12W	11W	13W	27W
Power consumption active	12W	12W	13W	13W	17W	30W
BUYING INFORMATION						
Capacities available	250GB, 500GB, 750GB	320GB, 500GB, 750GB, 1TB	250GB, 320GB, 500GB, 750GB, 1TB	320GB, 500GB, 750GB, 1TB	500GB, 1TB	1TB, 1.5TB
Bundled backup software	Maxtor Manager 4.1.1.23	LaCie Backup Software 1.5.2378.16573, LaCie Sync 7.0.108	Memo AutoBackup 2.00.1451	EMC Retrospect Express HD 2.0, LaCie Backup Software 1.5.2378.16573	NTI Shadow 3.7.5.20	EMC Retrospect Express HD 2.0
Price including VAT	£81	£90	£92	£145	£247	£263
Warranty	Five years	Two years	Two years	Three years	Two years	Two years
Supplier	www.lambda-tek.com/componentshop	www.play.com	www.kikatek.com	www.allmacshop.co.uk	www.lambda-tek.com/componentshop	www.lambda-tek.com/componentshop
Details	www.maxtorsolutions.com	www.lacie.com/uk	www.buffalo-technology.com	www.lacie.com/uk	www.freecom.com	www.iomega-europe.com
Part code	STM3050040TD3E5-RK	301302EK	HD-H5500IU2	301825EK	29418	33828

Labs verdict External hard disks

Most of the hard disks in this Labs are good value, but in the end three portable and two desktop disks stood out.

If you want a portable disk on a budget, we recommend Maxtor's OneTouch 4 Mini. It has a very low cost per gigabyte and reasonable performance, so wins a Budget Buy award. If you want the largest possible

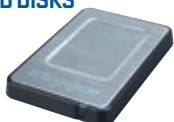
portable disk, Buffalo's 320GB MiniStation is a great choice and very good value, but our Best Buy award goes to Iomega's 250GB eGo. It's a sturdy and attractive portable disk that performed consistently well in our benchmarks and has a low cost per gigabyte.

On the desktop side, we were impressed with Iomega's 1.5TB UltraMax Pro. It can be

configured either as a RAID 0 array for space or RAID 1 for security, and costs an impressively low 19p per gigabyte. However, our favourite desktop hard disk is Buffalo's 500GB DriveStation Combo. It offers good USB Hi-Speed and excellent FireWire performance, and is great value for a 500GB disk. It's a Best Buy. **CS**

PORTABLE EXTERNAL HARD DISKS

MAXTOR
OneTouch 4 Mini 160GB
★★★★



IOMEGA
eGo USB 250GB Blue
★★★★★



DESKTOP EXTERNAL HARD DISKS

BUFFALO
DriveStation Combo TurboUSB 500GB
★★★★★

